APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,186	09/26/2003	Michael Thomas Greene	51249/RAG/Z74	9829

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EXAMINER
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2143	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/672,186	GREENE, MICHAEL THOMAS
	Examiner	Art Unit	
	Daniel Murray	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23JUL2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>23JUL2007</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Action is in response to Applicant's amendment filed on 23JUL2007. **Claims 1-6** are

now pending in the present application. **This Action is made FINAL.**

Drawings

2.   The replacement drawing sheets received on 23JUL2007 are accepted by the Examiner.

Claim Objections

3.   While Applicant has addressed the Examiner's objections (except the objection to claim 3) in

the Remarks/Arguments section of the amendment they are not reflected in the amended claims, as

such the claim objections still stand.

4.   **Claims 2-5** are objected to because of the following informalities:

        a) On **line 1** of **claims 2-5,** replace "A" with --The-- before "method" in order to provide

proper antecedent basis for "method according to".

        b) On **line 2** of **claim 4,** "shared boundaries" lack proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless —
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in
> this country, more than one year prior to the date of application for patent in the United States.

6.   **Claims 1-6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Andreev et al. (US**

Patent Publication # US 2001/0018759 A1).

a) Consider **claim 1,** Andreev et al. clearly show and disclose, a method of determining the

routing (figure2, abstract, paragraph [0002], paragraph [0088], paragraph [0091], paragraph [0096]) of

interconnected regions (figure 11a, figure 11b, figure 11c, figure 11d, abstract, paragraph [0148]) of a

routing problem by considering all required connections in parallel (figure2, figure 3, abstract,

paragraph [0033], paragraph [0034], paragraph [0088], paragraph [0091], paragraph [0096]) and only

attempting to resolve crossing conflicts only (figure 2, abstract, paragraph [0088], paragraph [0092],

paragraph [0145], paragraph [0146], paragraph [0187], paragraph [0188], paragraph [0190], paragraph

[0211], paragraph [0215], paragraph [0277]) when at least some contextual information about a

region and the paths that cross in the region has been assembled (figure2, figure3, figure 8h, figure 9,

abstract, paragraph [0089], paragraph [0102], paragraph [0124], paragraph [0143], paragraph [0187],

paragraph [0210], paragraph [214]).

b) Consider **claim 2, and as applied to claim 1 above,** Andreev et al. clearly show and

disclose, the method according to claim 1, wherein resolving of crossing conflicts is attempted only

(figure 2, abstract, paragraph [0088], paragraph [0092], paragraph [0145], paragraph [0146],

paragraph [0187], paragraph [0188], paragraph [0190], paragraph [0211], paragraph [0215], paragraph

[0277]) when all possible relevant contextual information has been assembled (figure2, figure3,

figure 8h, figure 9, abstract, paragraph [0089], paragraph [0102], paragraph [0124], paragraph [0143],

paragraph [0187], paragraph [0210], paragraph [214]).

c) Consider **claim 3, and as applied to claim 1 above,** Andreev et al. clearly show and

disclose, the method according to claim 1, comprising the steps of:

(a) defining, for each set of regions to be connected (figure 11a, figure 11b, figure 11c, figure 11d, abstract, paragraph [0148]), routing which represents a suitable manner of connecting them (figure2, abstract, paragraph [0002], paragraph [0088], paragraph [0091], paragraph [0096], paragraph [0190]), respecting only those crossing conflicts (paragraph [0145], paragraph [0146], paragraph [0187], paragraph [0188], paragraph [0211], paragraph [0215], paragraph [0277]) which have been explicitly registered with the set currently being considered (figure2, abstract, paragraph [0088], paragraph [0089]paragraph [0190]);

(b) collating all such proposed routing and resolving any crossing conflicts (paragraph [0145], paragraph [0146], paragraph [0187], paragraph [0188], paragraph [0211], paragraph [0215], paragraph [0277]) in a symmetric manner (figure 2, abstract, paragraph [0033], paragraph [0089], paragraph [0091], paragraph [0096]);

(c) registering such crossing conflicts (paragraph [0145], paragraph [0146], paragraph [0187], paragraph [0188], paragraph [0211], paragraph [0215], paragraph [0277]) with the sets of regions which will be required to respect them on the next pass (figure 2, abstract, paragraph [0033], paragraph [0088]);

(d) repeating steps (a) to (c) until a sufficient completion and quality of routing solution is attained (paragraph [0092]); and

(e) converting the routing into suitable geometric representations of routing paths in a way which takes all desired routing into account symmetrically and simultaneously (figure 2, figure 3, figure 9, figure 10, figure 11a, abstract, paragraph [0033], paragraph [0038], paragraph [0088], paragraph [0093], paragraph [0095], paragraph [0096]).

d) Consider **claim 4**, and **as applied to claim 3 above,** Andreev et al. clearly show and disclose, the method according to claim 3, in which the regions are polygons (figure 11a, figure 11b,

figure 11c) and the shared boundaries are edges (figure 11a, figure 11b, figure 11c, figure 11d,

paragraph [0148]).

e) Consider **claim 5,** and **as applied to claim 1 above,** Andreev et al. clearly show and

disclose, the method according to claim 1, wherein the interconnected regions (figure 11a, figure

11b, figure 11c, figure 11d, abstract, paragraph [0148]) are regions of an electrical circuit (figure 1,

paragraph [0015], paragraph [0033], paragraph [0034]).

f) Consider **claim 6,** Andreev et al. clearly show and disclose, a computer-implemented

method (paragraph [0034], paragraph [0329]) of determining the routing (figure2, abstract, paragraph

[0002], paragraph [0088], paragraph [0091], paragraph [0096]) of interconnected regions of a routing

problem (figure 11a, figure 11b, figure 11c, figure 11d, abstract, paragraph [0148]), the

interconnected regions (figure 11a, figure 11b, figure 11c, figure 11d, abstract, paragraph [0148])

being regions of an electrical circuit (figure 1, paragraph [0015], paragraph [0033], paragraph [0034]),

by considering all required connections in parallel (figure2, figure 3, abstract, paragraph [0033],

paragraph [0034], paragraph [0088], paragraph [0091], paragraph [0096]) and attempting to resolve

conflicts only (figure 2, abstract, paragraph [0088], paragraph [0092], paragraph [0145], paragraph

[0190]) when at least some contextual information about a region and the paths which cross there

has been assembled (figure2, figure3, abstract, paragraph [0089], paragraph [0102], paragraph

[0124]).

Response to Arguments

7.   Applicant's arguments filed 24JUL2007 have been fully considered but they are not

persuasive.

8.   Applicant argues that Andreev et al. does not teach "...attempting to resolve crossing

conflicts only when at least some contextual information about a region and the paths that cross in

the region has been assembled."

9.   The Examiner respectfully disagrees with Applicant's argument, Andreev et al. clearly show

and disclose "...attempting to resolve crossing conflicts (intersections)(figure 2, abstract, paragraph

[0088], paragraph [0092], paragraph [0145], paragraph [0146], paragraph [0187], paragraph [0188],

paragraph [0190], paragraph [0211], paragraph [0215], paragraph [0277]) only when at least some

contextual information about a region and the paths that cross in the region has been assembled

(data about paths (contextual information) in a region is clearly gathered before intersections

(crossing conflicts) are resolved)(figure2, figure3, figure 8h, figure 9, abstract, paragraph [0089],

paragraph [0102], paragraph [0124], paragraph [0143], paragraph [0187], paragraph [0210], paragraph

[214])."

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action.

11.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

> Andreev et al. (US Patent # US 6,324,674 B2) disclose: "Method and Apparatus for Parallel Simultaneous Global and Detail Routing"
> Gasanov et al. (US Patent # US 6,253,363 B1) disclose: "Net Routing Using Basis Element Decomposition"
> Pavisic et al. (US Patent # US 6,269,469 B1) disclose: "Method and Apparatus for Parallel Routing Locking Mechanism"
> Raspopovic et al. (US Patent # US 6,230,306 B1) disclose: "Method and Apparatus for Minimizing of Process Defects While Routing"
> Raspopovic et al. (US Patent # US 6,247,167 B1) disclose: " Method and Apparatus for Parallel Steiner Tree Routing"
> Raspopovic et al. (US Patent # US 6,260,183 B1) disclose: " Method and Apparatus for Coarse Global Routing"
> Raspopovic et al. (US Patent # US 6,289,495 B1) disclose: " Method and Apparatus for Local Optimization of the Global Routing"
> Scepanovic et al. (US Patent # 6,154,874) disclose: "Memory-Saving Method and Apparatus for Partitioning High Fan-Out Nets"
> Scepanovic et al. (US Patent # US 6,175,950 B1) disclose: "Method and Apparatus for Hierarchical Global Routing Descend"

12.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Daniel Murray whose telephone number is (571)-270-1773. The examiner can

normally be reached on Monday - Friday 0800-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

David Wiley can be reached on (571)-272-3923. The fax phone number for the organization where

this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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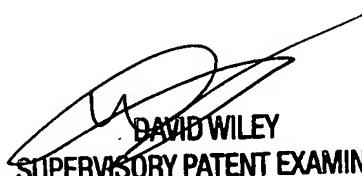
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